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*Translation of Priority Document*

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Application Number : Patent Application No. 58185/1999  
Date of Application : December 16, 1999  
Applicant(s) : Samsung Electronics Co., Ltd.

**COMMISSIONER**

**[ABSTRACT OF THE DISCLOSURE]**

**[ABSTRACT]**

Disclosed are a device and a method of transmitting SOS signals in a mobile telecommunication terminal. The method according to the invention  
5 includes the steps of matching each one of a plurality of SOS phrases served by the mobile telecommunication terminal with code signals of a corresponding format, and storing the matched codes, providing a user with a menu so as to select any one of the SOS phrases upon entry into an SOS service mode, and modulating the code signal of the corresponding format selected by the user from  
10 the menu into a frequency of the corresponding bandwidth, and wirelessly outputting the modulated signal.

**[REPRESENTATIVE FIGURE]**

**FIGURE 3**

15

**[INDEX]**

Service of transmitting SOS signals, frequency bandwidth used by emergency rescue teams

20

**[SPECIFICATION]**

**[TITLE OF THE INVENTION]**

**APPARATUS AND METHOD FOR TRANSMITTING EMERGENCY  
RESCUE REQUEST SIGNAL OF MOBILE WIRELESS PHONE**

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**[BRIEF DESCRIPTION OF THE DRAWINGS]**

Fig. 1 is a block diagram illustrating a device of transmitting SOS signals in a mobile telecommunication terminal according to an embodiment of the present invention;

10 Fig. 2 is a block diagram illustrating a mobile telecommunication terminal for transmitting SOS signals according to an embodiment of the present invention; and

Fig. 3 is a flow chart illustrating a process of performing the method of requesting an SOS service in a mobile telecommunication terminal according to  
15 an embodiment of the present invention.

**[DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT]**

**[OBJECT OF THE INVENTION]**

**[RELATED FIELD AND PRIOR ART OF THE INVENTION]**

20 The present invention relates to a device and a method of transmission in a mobile telecommunication terminal, and in particular, to a device and a method of transmitting SOS signals.

Mobile telecommunication terminals are generally unavailable in "No Service Areas," which are beyond reaches of electric waves sent from a base  
25 station, such as electric wave dead areas, mountains or oceans. Under the circumstances requiring an emergency relief or an SOS from a disaster in an electric dead area or in a mountain, etc., however, the mobile telecommunication terminals are of no use in transmitting SOS signals.

Therefore, if available for transmitting SOS signals in a frequency  
30 bandwidth relevant to the area in need, e.g., in the frequency bandwidth used by emergency rescue teams, the mobile telecommunication terminals currently popular and easily accessible by the public can serve as means for requesting

rescues in the areas beyond reaches of electric waves sent from a base station.

**[SUBSTANTIAL MATTER OF THE INVENTION]**

It is, therefore, an object of the present invention to provide a device and  
5 a method of transmitting SOS signals in a mobile telecommunication terminal.

It is another object of the present invention to provide a device and a  
method of requesting a relief from an area beyond reaches of electric waves sent  
from a base station by converting an SOS message to a format relevant to a  
mobile telecommunication terminal, storing the formatted message, and  
10 transmitting the stored message with a corresponding frequency bandwidth.

It is still another object of the present invention to provide a device and a  
method of requesting a relief from an area beyond reaches of electric waves sent  
from a base station by converting an SOS message to a format relevant to a  
mobile telecommunication terminal, storing the formatted message, and  
15 transmitting the stored message with a corresponding frequency bandwidth by  
means of a simple change of software without an addition of hardware.

To achieve the above objects, there is provided a device of transmitting  
SOS signals in a mobile telecommunication terminal, comprising: a user  
interface for providing a menu for selection of any one of a plurality of SOS  
20 phrases served by the mobile telecommunication terminal; a memory for storing  
code signals of the formats corresponding to each SOS phrase; a control section  
for selecting any one of the code signals stored in the memory in a corresponding  
format in accordance with a selection of menu by the user; a frequency  
generation section for generating a locally oscillating frequency signal of the  
25 corresponding bandwidth; and a frequency modulation section for modulating a  
code signal of a corresponding format selected from the menu into a  
corresponding frequency bandwidth and wirelessly outputting the modulated  
code signal by inputting a locally oscillating frequency signal of the  
corresponding frequency bandwidth.

30 To achieve the above objects, there is also provided a method of  
transmitting SOS signals in a mobile telecommunication terminal, comprising the  
steps of: matching each one of the plurality of SOS phrases served by the mobile

telecommunication terminal with a code signal of the corresponding format; providing a user with a menu for selecting any one of the plurality of SOS phrases once the user enters an SOS mode; modulating a code signal of the corresponding format selected from the menu by the user into a corresponding  
5 frequency bandwidth, and wirelessly outputting the modulated code signal.

### [CONSTRUCTION AND OPERATION OF THE INVENTION]

A preferred embodiment of the present invention will be described herein below with reference to the accompanying drawings. In the following  
10 description, same drawing reference numerals represent the same constitutional elements even in different drawings. Also, well-known functions or constructions are not described in detail since they would obscure the invention in unnecessary detail.

According to an embodiment of the present invention, an SOS phrase  
15 selected by a user through a user interface is converted to a code signal of a corresponding format (e.g., a Morse code), and stored in a memory. The selected SOS phrase is matched with the stored corresponding code signal on a one-to-one basis. Or, according to another embodiment of the present invention, an SOS message format converting section may convert the phrase actually desired by  
20 the user in an emergency state to a code signal of the corresponding format. The converted SOS message is modulated into a corresponding high frequency bandwidth, and is transmitted.

Fig. 1 is a block diagram illustrating a device of transmitting SOS signals in a mobile telecommunication terminal according to an embodiment of the  
25 present invention.

A user interface 110 provides an SOS service menu, and outputs key data corresponding to the menu selected by the user to a control section 120. The SOS service menu enables the user to select any one of a plurality of SOS phrases served by the mobile telecommunication terminal. The SOS service  
30 menu may also provide a sentence editing function.

A memory 130 stores signals of the code format matched with each SOS phrase on a one-to-one basis. The code format may be a Morse code. The

control section 120 selects any one signal from the signals of the corresponding code format stored in the memory 130 in accordance with the key data inputted from the user interface 110.

5 A frequency generation section 150 generates a local oscillating frequency of the corresponding bandwidth. The frequency generation section 150 may be a voltage controlled oscillator (VCO). Also, the corresponding frequency bandwidth here may be a frequency bandwidth used by rescue teams, a high frequency (HF) bandwidth, or 3MHz-30MHz.

10 A frequency modulation section 140 frequency-modulates the signal of the corresponding format outputted from the control section 120, and outputs the modulated signal through antenna by inputting the local oscillating frequency signal.

Fig. 2 is a block diagram illustrating a mobile telecommunication terminal for transmitting SOS signals according to an embodiment of the present invention.

15 A control section 210 controls general operation of the mobile telecommunication terminal. A memory 240 comprises a ROM for storing an operative program, an EEPROM for electric programming, a RAM and a flash memory. The memory 240 stores a program for controlling the method of transmitting SOS signals according to an embodiment of the present invention. The memory 240 stores signals of the corresponding format matched with each SOS phrase on a one-to-one basis. The code format may be a Morse code.

20 A display section 220 is a displaying device such as a liquid crystal display (LCD) or a graphic screen. The display section 220 displays the state of the mobile telecommunication terminal or a state of processing the program under a control by the control section 210. The display section 220 also provides an SOS service menu according to the present invention. The user may select any one of a plurality of phrases in the menu served by the mobile telecommunication terminal. The SOS service menu may also provide a sentence editing function.

30 A key input section 230 comprises a plurality of numeric keys and functional keys for performing diverse functions, and outputs key input data to

the control section 210 through an external manipulation.

An RF section 250 up-converts the signals inputted from an analog base band section 260, and wirelessly outputs the converted signals to a base station (not shown in the drawings) through an antenna 280. The RF section 250 down-converts the signals received through the antenna 280 under a control by the control section 210, and outputs the converted signal to the analog base band section 260. The analog base band section 260 converts the signal inputted from the RF section 250 to a base bandwidth and a digital signal, and outputs the converted signal to the control section 210. The analog base band section 260 also outputs the signal outputted from the control section 210 to the RF section 250.

The control section 210 performs a channel demodulation and a channel decoding with respect to the digital signal outputted from the base band section 260. The control section 210 also outputs the corresponding voice data to a signal processing section 270. The signal processing section 270 decompresses compressed voice data, converts the decompressed data to audible voice signals, and outputs the converted signals to a speaker so as to be audible by the user.

The signal processing section 270 converts the voice signals of the user to voice data, compresses the converted signals, and outputs the compressed signals to the control section 210. The control section 210 performs a channel coding and a channel modulation with respect to the voice data, and wirelessly outputs the modulated signals to the base station through the RF section 250 and the antenna 280.

The RF section 250 comprises the VCO, and generates a frequency of a wireless frequency bandwidth or an HF bandwidth through a frequency division under a control by the control section 210. The RF section 250 further enables the control section 210 to use a clock relevant to the HF bandwidth by feeding back the frequency of the HF bandwidth when the mobile telecommunication terminal operates in an SOS mode. The VCO may generate a signal of a particular frequency to be allotted when the SOS service is launched for the mobile telecommunication terminal.

In the SOS mode, the control section 210 and the analog base band



section 260 is equivalent to the frequency modulation section, while the VCO included in the RF section 250 is equivalent to the frequency generation section.

In the SOS mode, the control section 210 outputs an SOS menu through the display section 220. The control section 210 further outputs the signals of the  
5 format corresponding to the key input data in accordance with the selection of a menu by the user to the analog base band section 260. At this stage, the analog base band section 260 converts the inputted signals to analog signals of the base bandwidth, and outputs the converted signals to the RF section 250. The RF section 250 subsequently generates a frequency of the HF bandwidth under a  
10 control by the control section 210, and wirelessly outputs the analog signals of the base bandwidth to the signals of the HF bandwidth through the antenna 280.

Fig. 3 is a flow chart illustrating a process of performing the method of requesting an SOS service in a mobile telecommunication terminal according to an embodiment of the present invention. The method according to an  
15 embodiment of the present invention will now be explained with reference to Fig. 2.

In step 310, the control section 210 matches each of the SOS phrases with code signals of the corresponding format, and stores the matched signals in the memory 240. The code signal of the corresponding format may be a Morse  
20 code. When entering the SOS mode in step 320 by means of an input of the corresponding key data by the user, the control section 210 displays on the display section 220 a selection menu of the SOS phrases stored in the memory 210 in step 330.

In step 340, the control section 210 selects any one of the code signals of  
25 the corresponding format stored in the memory 240 in accordance with a selection of the menu by the user. The control section 210 then outputs the selected signal to the analog base band section 260. The analog base band section 260 converts the selected signal to an analog signal of the base bandwidth, and outputs the converted signal to the RF section 250 under a control by the  
30 control section 210. The RF section 250 generates a frequency of the HF bandwidth under a control by the control section 210. The RF section 250 also modulates the analog signal of the base bandwidth to a signal of the HF

bandwidth, and wirelessly outputs the modulated signal through the antenna 280. Here, the HF bandwidth may be the frequency bandwidth used by rescue teams. Also, the corresponding bandwidth may be 3MHz-30MHz.

While Fig. 3 above exemplified the construction of converting the SOS phrase selected by the user through the user interface to a code signal of the corresponding format (e.g., a Morse code) and storing the converted signal in the memory, it is also possible to convert a phrase actually desired by the user in an emergency state to a code signal of the corresponding format by introducing a format converting function of the control section 210.

While the invention has been shown and described with reference to a certain preferred embodiment thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the invention as defined by the appended claims.

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#### [EFFECTS OF THE INVENTION]

As described above, the present invention provides an advantage of enabling the user to transmit an SOS message even in the areas beyond reaches of electric waves sent from a base station by converting the SOS message to signals of a format relevant to a mobile telecommunication terminal, storing the formatted signals and transmitting the stored signals in a corresponding frequency bandwidth.

**[PATENT CLAIMS]**

1. A device of transmitting SOS signals in a mobile telecommunication terminal, comprising:
  - 5 a user interface for providing a user with a menu so as to select any one of a plurality of SOS phrases served by the mobile telecommunication terminal;
  - a memory for storing code signals of a format corresponding to each of the SOS phrases;
  - a control section for selecting any one of the stored code signals of the
  - 10 corresponding format in accordance with a selection of the menu by the user;
  - a frequency generation section for generating a local oscillating frequency signal of a corresponding bandwidth; and
  - a frequency modulation section for modulating a frequency of the selected code signal of the corresponding format by inputting the local oscillating
  - 15 frequency signal of the corresponding bandwidth, and wirelessly outputting the modulated signal.
2. The device of claim 1, wherein the menu of the SOS phrases provides a sentence editing function.
- 20 3. The device of claim 1, wherein the frequency bandwidth is the one used by rescue teams.
4. The device of claim 3, wherein the frequency bandwidth is a
- 25 high frequency bandwidth.
5. The device of claim 1, wherein the frequency generation section generates a predetermined frequency allotted for an SOS service in the mobile telecommunication terminal.
- 30 6. The device of claim 1, wherein the code of the corresponding format is a Morse code.

7. A method of transmitting SOS signals in a mobile telecommunication terminal, comprising the steps of:
- 5 matching each one of a plurality of SOS phrases served by the mobile telecommunication terminal with code signals of a corresponding format, and storing the matched codes;
- providing a user with a menu so as to select any one of the SOS phrases upon entry into an SOS service mode; and
- 10 modulating the code signal of the corresponding format selected by the user from the menu into a frequency of the corresponding bandwidth, and wirelessly outputting the modulated signal.
8. The method of claim 7, wherein the menu of the SOS phrases provides a sentence editing function.
- 15 9. The method of claim 7, wherein the frequency bandwidth is the one used by rescue teams.
10. The method of claim 7, wherein the frequency bandwidth is a high frequency bandwidth.
- 20 11. The method of claim 7, wherein the frequency bandwidth is a predetermined frequency allotted for an SOS service in the mobile telecommunication terminal.
- 25 12. The method of claim 7, wherein the code of the corresponding format is a Morse code.

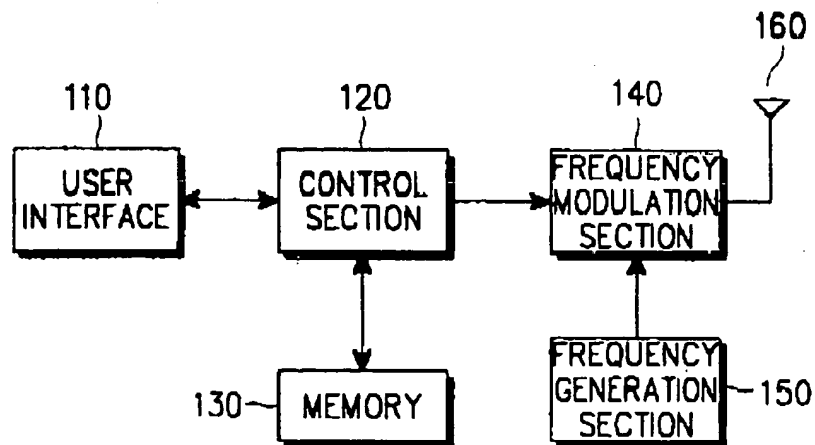


FIG. 1

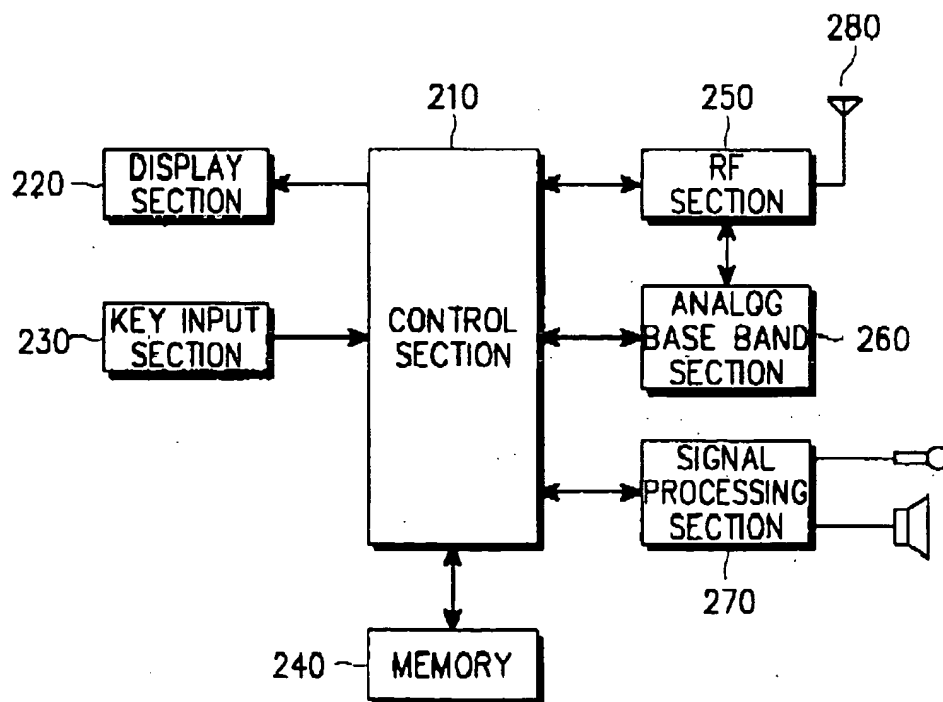


FIG. 2

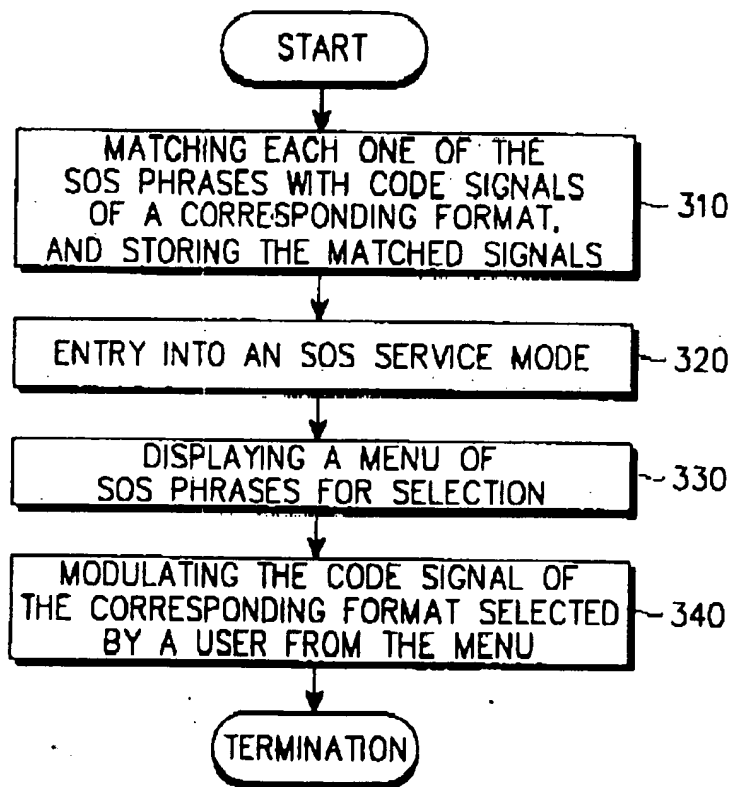


FIG. 3